



## SWITCHING POWER SUPPLIES - NARROW PROFILE (WN8)

Acopian switching power supplies are high performance units that are unusually compact relative to their output ratings. Features include short circuit, overvoltage and thermal protection, 'soft start' operation, and a status light that shows operational status at a glance: the green 'DC on' indicator signals normal operation, and extinguishes when the current limit control is activated by a short circuit or latching of the overvoltage protection circuit due to an overvoltage condition.

### INSTALLATION

Threaded holes on the bottom and right side surface may be used for mounting. An accessory Mounting Kit (model NP6) is available to enable mounting the power supply when the opposite side of the mounting surface is inaccessible. DIN rail Mounting Kits are also available.

It is very important to allow for the free circulation of air around and THROUGH the power supply (do not block fan intake or exhaust). Failure to do so will result in thermal shutdown or possible damage to the power supply.

Space at least one-half inch away from surrounding objects.

For installation in a Pollution Degree 2 environment.

### CONNECTIONS

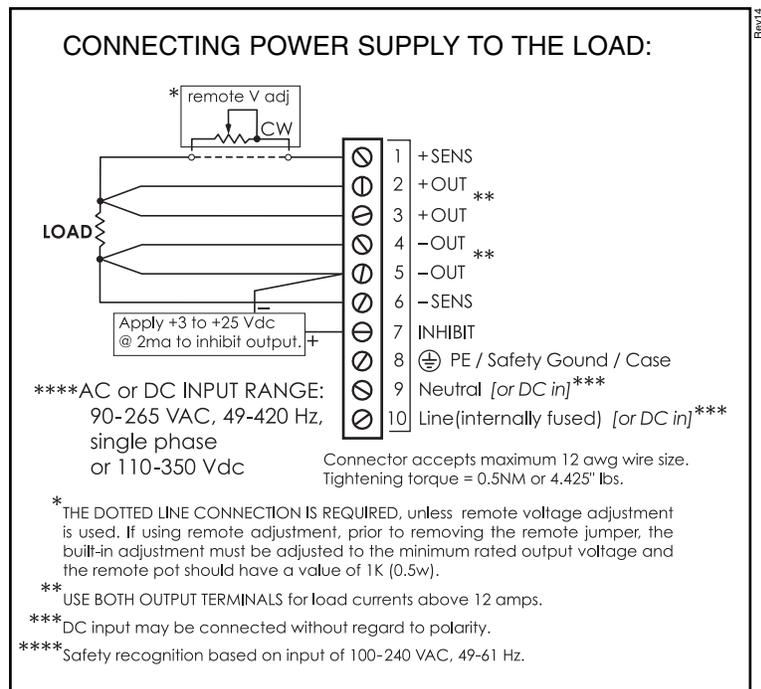
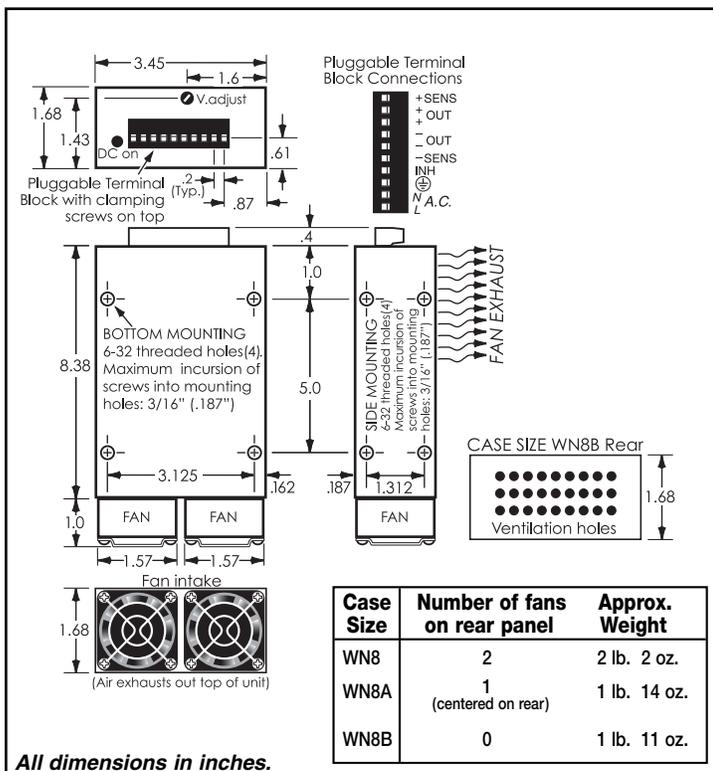
Make all connections before applying input power.

THE SENSING TERMINALS MUST BE CONNECTED to the output terminals, either at the output terminals of the power supply or at the load. Failure to have the sense terminals connected will affect the output voltage (usually causing it to be higher than the rating of the supply, and unadjustable), or may result in the overvoltage protection circuit latching the output 'off'. If voltage drops in the output voltage leads (which degrade regulation) are not objectionable, local sensing can be used; leave in place the jumpers provided with the power supply (connecting the +S (sense) to the +OUT and the -S (sense) to the -OUT). However, if the best possible regulation at the load is required, then remove the jumpers and use two lighter gauge leads to connect the sense terminals to the output leads at the load, as shown in the schematic. This configuration permits the power supply to sense and compensate the voltage actually across the load. Note that remote sensing is capable of compensating only limited wiring drops. The voltage across the load, plus the voltage drops through the wiring, must be within the output voltage range of the supply for the voltage at the load to remain within the load regulation specification. Therefore, the wire gauge used for the output lines MUST BE LARGE ENOUGH to assure that their combined voltage drops will not exceed the difference between the maximum output voltage of the supply and the voltage to be maintained across the load.

For remote voltage control, set the internal voltage control to the minimum output voltage (fully counter clock-wise), remove the +S (sense) jumper and connect a potentiometer between the +S (sense) and the +OUT terminals. For 3.3 to 48 volt models use a 1K (0.5 watt) potentiometer; for 50 to 125 volt models use a 5K (0.5 watt) potentiometer. The output voltage is directly related to the remote voltage control resistance. Use a high quality Cermet or composition potentiometer for the best output stability.

The power supply's output may be inhibited by applying between +3 to +25 Vdc (relative to the -OUT terminal) to the Inhibit terminal.

In electrically noisy environments it may be necessary to use shielded wire for remote voltage control and remote sensing. Connect the shields to the ground terminal on the terminal strip. Usually, the lowest level of output noise results when the load ends of the shield are *not* connected. Noise can be reduced in some applications with the use of a capacitor connected across the sense lines at the power supply; and in other applications, when one is connected across the load. A 0.1 mfd (100 WVdc) capacitor with good high frequency characteristics (such as Mylar types) is appropriate. Do not use a capacitor unless necessary.



The complete Acopian catalog is available on the Internet at [www.acopian.com](http://www.acopian.com)  
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**ALL ACOPIAN  
POWER SUPPLIES  
MADE IN U.S.A.**



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### OPERATION

These power supplies operate as constant voltage sources when used at load currents equal to or less than their ratings. If a power supply is overloaded, the current limit circuit will automatically reduce the output voltage until the overload is removed, and will then recover. Under high overload or shorted conditions, the green Output Voltage Indicator is not on.

A higher than normal output voltage (even if momentary, as when caused by a transient induced into the output wiring) will result in the overvoltage protection circuit latching the output OFF. To reset the output, interrupt the AC input power for 20 seconds.

If there is any possibility of voltage from another source (another power supply, a battery, transients, etc) being applied to the power supply's output terminals, protect the power supply by using a diode in series with either the +OUT or the -OUT.

Do not attempt to directly parallel the outputs of two power supplies. This would result in current flowing from the higher-set output into the lower-set output, and probable damage to both circuits. Outputs may be connected in series to obtain a higher voltage provided that a reverse-biased diode, having PIV and current ratings exceeding the combined output, is used across each output; however, keep in mind that the output current to be drawn cannot exceed the output current rating of the lowest rated supply used.

These power supplies are internally fused for protection in the event of power supply failure. When using a line to line input (two high lines as with typical 208 VAC and 230 VAC sources) for safety reasons it is recommended that an external fuse of 6.3 amps be used in series with the 'N' side of the AC input.

These power supplies have internal AC line noise filtering and transient suppression. If the AC input power contains large voltage spikes ('noise') induced by the switching of high currents, inductive loads, electro-mechanical components, etc., the input power leads to the supply should include some means of transient suppression. Otherwise, a portion of the noise may be coupled through the supply to the load. Also, the supply could be damaged. The means of suppression that is easiest to install is a 1 mfd capacitor or a metal oxide surge suppressor (MOV) across the AC input terminals of the supply. In extremely severe cases, the use of RF chokes in series with each side of the line may also be required.

### TROUBLE ANALYSIS

Whenever an operating problem is experienced, systematically check for external causes first, including all fuses, primary power lines, external circuit elements, and external wiring. Failures and malfunctions often can be traced to simple causes such as improper wiring or connections. Lack of output may result from no AC input voltage or voltage too low, tripped overvoltage protection, presence of an inhibit signal, a blown fuse, thermal shutdown (self-resetting) or a damaged power supply.

**CAUTION:** For continued protection against risk of fire, replace internal fuse with same type and rating of UL Listed fuse (F1; 6.3 amps, 250VAC 5x20mm).

**UL508 FILE: E306586**

**UL60950 FILE: E208800**

#### Applies to CE-certified models:

##### **CE Marked To:**

Directive 2011/65/EU (ROHS Recast)  
Directive 2006/95/EC (Low Voltage Directive)  
Regulation (EC) No 1907/2006 (REACH)

##### **SPECIAL MEASURES AND LIMITATIONS**

*To maintain compliance with the Low Voltage Directive, the following special measures and limitations must be observed when the product is placed into service:*

- Evaluated for use in Pollution Degree 2 environment.
- Intended for connection to Class 1, TN-S power system.
- Models with outputs of 36 volts or less are considered to have SELV outputs.
- Models with outputs greater than 36 volts are considered to have hazardous voltage outputs and should not be located in an Operator Access area in the end product.
- Models with output ratings less than 240VA are considered to have non-hazardous energy levels. Models with output ratings of 240VA or greater are considered to have hazardous energy levels.
- Models without a built-in fuse require an external fuse to be used in the ungrounded (hot) side of the AC line.
- See catalog for electrical and mechanical specifications.
- Ground terminal must be bonded to protective earth.
- Intended to be installed within end-use equipment.